



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/935,735      | 08/24/2001  | Yu Wang              | 839-1005            | 9889             |

7590 02/20/2004

NIXON & VANDERHYE P.C.  
8th Floor  
1100 North Glebe Rd.  
Arlington, VA 22201-4714

|          |
|----------|
| EXAMINER |
|----------|

SCHEUERMANN, DAVID W

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2834

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/935,735

Applicant(s)

WANG, YU

Examiner

David W. Scheuermann

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 23-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-6 and 26-28 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-10, 23-25 and 29-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

Applicant's arguments filed January 9, 2004 have been fully considered but they are not persuasive. The arguments claiming lack of anticipation in the Laskaris '333 reference are answered bullet to bullet in the order presented by applicant.

- There are slots in the rotor core sections, which receive the winding support as shown in figure 1 of Laskaris '333. Note that winding support 32 is locked into position by the slot of core 24.
- This amendment directed to a winding support that is "thermally isolated defines over Laskaris '333." However, this amendment to claim 1 is improper because "new matter" has been entered. Additionally, new ground(s) of rejection overcome this amendment.
- Winding support 32 is a distinct structure from core section 24.
- There are slots in the rotor core sections, which receive the winding support as shown in figure 1 of Laskaris '333. Note that winding support 32 is locked into position by the slot of core 24.
- Rotor core sections of Laskaris '333 are axially aligned. Note axially spaced alignment holes 39, see column 4, lines 58-60.
- Laskaris '333 does show opposite end core sections and a middle core section. Laskaris '333 shows a top core section 24, middle core sections 20-23 and bottom core section 25. It is noted that core section 24 and 25 are on opposite ends.

Art Unit: 2834

- Laskaris '333 show a gap separating the tie rod from the slot. Since the tie rod, bolt 38 of Laskaris '333, is not touching the slot (along the surface of the winding support) an inherent gap lies between the tie rod and slot.
- The coil winding support of Laskaris '333 does indeed lie on opposite sides of the winding. Note that the outermost left side of coil 14 is supported by support 32 while the outermost right side (the opposite side) is supported by support 34. Further, note that figures 3A and 4A show that support 34 surrounds the outer perimeter of coil 14.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 and 7-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase, "wherein said winding support is thermally isolated from said rotor core section," emphasis added, was not described in the specification, claims or drawings at the time the application was filed hence it is deemed new matter.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23-25 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Laskaris, US 3991333. Laskaris shows a rotor in a synchronous machine, comprising: super conducting field winding assembly having a coil winding (any of 12-16) and at least one winding support (any of 21-24 or 32-36) extending between opposite sides (e.g., right and left side of bolt 38 as shown in figure 1) of the winding, wherein opposite ends (e.g., upper and lower as shown in figure 1 for 21-24 or for example, the edges furthest away from the longitudinal axis of bolt 38 in either of two directions for 32-36) of said winding support attach to the coil windings, and a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support. Note that winding supports and core sections 21-24 and 32-36 both support the coil and form the core. Additionally, they mutually receive each other via alignment or positioning slots.

***Claim Rejections - 35 USC § 103***

Art Unit: 2834

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laskaris '333 in view of Abolins et al, US 3942053. Laskaris shows a rotor in a synchronous machine, comprising: super conducting field winding assembly having a coil winding (any of 12-16) and at least one winding support (any of 21-24 or 32-36) extending between opposite sides (e.g., right and left side of bolt 38 as shown in figure 1) of the winding, wherein opposite ends (e.g., upper and lower as shown in figure 1 for 21-24 or for example, the edges furthest away from the longitudinal axis of bolt 38 in either of two directions for 32-36) of said winding support attached to the coil windings, and a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support. Note that winding supports and core sections 21-24 and 32-36 both support the coil and form the core. Additionally, they mutually receive each other via alignment of positioning slots. Laskaris does not expressly disclose a thermally isolated winding support. Abolins et al disclose a thermally isolated winding support, for the purpose of avoiding direct thermal bridges. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to assemble the winding or winding supports of Laskaris '333 with minimal

Art Unit: 2834

contact areas. One of ordinary skill in the art would have been motivated to thermally isolate the winding from the core by reducing the number of direct thermal bridges.

As to claim 7 note that tie rod, bolt 38 of Laskaris '333, is not touching the slot (along the surface of the winding support). Therefore, an inherent gap lies between the tie rod and slot.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Laskaris and Abolins et al. in view of Driscoll et al., US 6169353. The combination of Laskaris and Abolins et al. discloses the invention substantially as claimed. The combination of Laskaris and Abolins et al. does not expressly disclose the vacuum over the coil winding or the composition of the core sections. Driscoll et al. disclose encasing the rotor in a vacuum shell to prevent convection, as set forth in column 4, lines 53-56. The use of an iron core rotor for the purpose of providing a high magnetic permeability is known in the art, as set forth in the previous office action. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to both encase the core and windings of the combination of Laskaris and Abolins et al. in a vacuum vessel and use an iron-based core. One of ordinary skill in the art would have been motivated to do this to prevent convection and to provide a core of high magnetic permeability.

As to claims 10 it would have been obvious to replace an iron core with an iron-forged core for any of making the core stronger and reducing manufacturing costs as stated in the previous office action.

Art Unit: 2834

Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laskaris, US 3991333 in view of Driscoll et al., US 6169353. Laskaris discloses the invention substantially as claimed. Laskaris does not expressly disclose the vacuum over the coil winding or the composition of the core sections. Driscoll et al. disclose encasing the rotor in a vacuum shell to prevent convection, as set forth in column 4, lines 53-56. The use of an iron core rotor for the purpose of providing a high magnetic permeability is known in the art, as set forth in the previous office action. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to both encase the core and windings of Laskaris in a vacuum vessel and use an iron-based core. One of ordinary skill in the art would have been motivated to do this to prevent convection and to provide a core of high magnetic permeability.

As to claims 23 it would have been obvious to replace an iron core with an iron-forged core for any of making the core stronger and reducing manufacturing costs as stated in the previous office action.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the



Art Unit: 2834

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Intichal et al teach the use of a thermal insulated coil winding support in the abstract.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David W. Scheuermann whose telephone number is (571) 272-2035. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (571) 272-2034. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

dws  
February 10, 2004

  
BURTON S. MULLINS  
PRIMARY EXAMINER